WHAT IS CLAIMED IS:

1. A process for making a metal cyanide catalyst comprising

(A) forming an emulsion having a plurality of water droplets dispersed in an immiscible continuous phase, wherein the water droplets contain a transition metal cyanide compound and a metal salt that reacts with the transition metal cyanide compound to form a water-insoluble metal cyanide catalyst, and

(B) subjecting the emulsion to conditions such that the transition metal cyanide compound and the metal salt react in the water droplets to form the water-soluble metal cyanide catalyst.

2. The process of claim 1, wherein the catalyst is in the form of particles having an average particle size, as determined by transmission electron spectroscopy, of from about 5 to about 500 nanometers.

3. The process of claim 1 or 2, wherein step (A) is conducted by

A1) forming a first emulsion of first water droplets dispersed in an immiscible continuous phase, wherein the first water droplets contain a transition metal cyanide compound;

A2) forming a second emulsion of second water droplets dispersed in an immiscible continuous phase, where the second water droplets contain a dissolved metal salt that reacts with the transition metal cyanide compound to form a water-insoluble metal cyanide catalyst; and

A3) mixing the first and second emulsions under conditions such that said first water droplets contact said second water droplets.

4. The process of any of claims 1-3, wherein the immiscible continuous phase includes a surfactant.

5. The process of any of claims 1-4, wherein the immiscible continuous phase includes a liquid organic compound that is immiscible with water.

6. The process of claim 5, wherein the immiscible continuous phase includes a hydrocarbon, a C_6 or higher alkanol, or a mixture of at least one hydrocarbon and

at least one C_6 or higher alkanol.

7. The process of any of claims 1-6, wherein the catalyst is treated with a ligand.

8. The process of claim 7, wherein the ligand is present during step b).

9. The process of any of claims 1-8, wherein the metal cyanide compound is a hexacyanocobaltate compound and the metal salt is a zinc salt.

10. A process wherein a metal cyanide catalyst is mixed with an alkylene oxide and the resulting mixture subjected to conditions including an elevated temperature sufficient to polymerize the alkylene oxide to form a poly(alkylene oxide), wherein the metal cyanide catalyst is the product of a process of any of claims 1-9.

11. The process of claim 10, wherein the metal cyanide catalyst has an average particle size, as determined by transmission electron spectroscopy, of from about 5 to about 500 nm, prior to being exposed to an alkylene oxide.

12. The process of claim 10 or 11, wherein the metal cyanide catalyst has an average particle size, as determined by transmission electron spectroscopy, of from about 5 to about 150 nm, prior to being exposed to an alkylene oxide.

13. The process of any of claims 10-12, wherein the catalyst is a zinc hexacyanocobaltate catalyst.

14. The process of any of claims 10-13, wherein the catalyst contains an organic ligand.

15. The process of any of claims 10-14, which is conducted in the presence of an initiator compound.

16. The process of claim 15, wherein the initiator compound is a poly(propylene

oxide) and the alkylene oxide is ethylene oxide.

17. The process of any of claims 10-15, wherein propylene oxide and ethylene oxide are sequentially polymerized to form an ethylene-oxide capped poly(propylene oxide) polyol.

17. A process wherein a poly(propylene oxide) polymer is EO-capped, comprising contacting the poly(propylene oxide) polymer with ethylene oxide under polymerization conditions in the presence of a catalytically effective amount of a metal cyanide catalyst in the form of particles having an average particle size, as determined by transmission electron spectroscopy, of from about 5 to about 500 nm, prior to being exposed to an alkylene oxide.

18. A metal cyanide catalyst in the form of particles having an average particle size, as determined by transmission electron spectroscopy, of from about 5 to about 500 nm, prior to contact with an alkylene oxide.

19. A process wherein a metal cyanide catalyst of claim 18 is mixed with an alkylene oxide and the resulting mixture subjected to conditions including an elevated temperature sufficient to polymerize the alkylene oxide to form a poly(alkylene oxide).